MIIC2 Project Plan - (last update 11/28/2014)

Phase	Milestone	Major Task	Who	Est. time (days)	Notes	Progress (in progress) (complete) (not started) (lower priority)
Year 1 - Intercalibration, Data Mining, Initial Deployment						
	Use case analysis					
		GSICS intercalibration use cases	Doelling		both GEO/LEO and LEO/LEO	Lower priority
		Other intercalibration use cases	Lukashin			Lower priority
		Data mining use cases	Lukashin			Ongoing
		Intercomparison use cases	Liu		Requires full-res N-Tuple data collection & new data collections	Ongoing
		OSSE use cases	Roberts			Not started
	Data System Hardware					
		ASDC Data System Design	Johnson		Upgrade to 10GigE, MIIC server purchaced	Complete
		ASDC Data System Design Review	Currey			Not conducted ???
		Pre-production integration & test at dataserver2 (ASDC)	Bartle		Gain insight into MIIC behavior by continuous deployments to production-like system	Ongoing
		NCDC Data System Design	Morris	6 mo.	h/w requirements, use existing? storage capacity? ~15TB initially, size? connectivity - existing DMZ? NFS share IT security authorization for opendap Access to Dave for opendap install	Not started
		NCDC Data System Design Review	Currey			
	Setup project mgmt. tools					
		PM Tools at ECE			ECE hosts project wiki (Confluence), project tickets (Jira) and project repository (Git)	Complete
		Populate with MIIC-1 data	TJ		Wiki content migrated. Old tickets (TRAC) were not migrated	Complete
	Simplify System Deployment					
		Package OPeNDAP + MIIC as RPM	Bartle		This will greatly simplify the procedure to get NCDC, LaRC, or others servers running with the correct OPeNDAP version	In progress
		Simplify MIIC war generation and deployment	Bartle		Easily reproducable MIIC war configuration	Complete
	Software architecture refactoring					
		User interface and interaction design	Bartle		Only minor changes needed from MIIC-1 design	Complete
		Service oriented design	Bartle		Only minor changes needed from MIIC-1 design	Complete
	NCDC GOES data product access					
		Support NCDC GOES	Bartle		Access GOES from netCDF as opposed to McIDAS binary	In progress
		Refactor GEO viewing angle generation	Bartle		Improve the algorithm that generates GEO viewing angles, if necessary	Not started / lower priority
	Full resolution (N-Tuple) data analysis					
		Server-side full-resolution data collection and filtering (N-tuple)	TJ / Bartle		Supports two collection formats: flattened 1D array w/ original indices, or N-dimensional array with filtered indices removed completely	Complete
		Client-side intercalibration using full-res data	Bartle		Does not need to support analysis at this time -- assumption that client will perform her own analysis	Complete

	Generalized data product access (2D histogram & full resolution)					
		Support VIIRS SDR (h5)	Bartle / Currey		Requires code change to support multiple files per logical granule (one file stores a subset of available data variables)	In progress
		Support CrIS SDR (h5)	Bartle / Currey			In progress
		Support ATMS SDR (h5)	Bartle / Currey			In progress
		Support VIIRS EDR (h5)	Bartle / Currey		Requires code change to support multiple files per logical granule	In progress
		Support CrIS EDR (h5)	Bartle / Currey			In progress
		Support CERES SSF (hdf4)	Bartle / Currey		CERES L2 collections are supported	Complete
		Support L2 CALIOP (hdf4)	Bartle / Currey		Calipso L1 & L2 collections are supported	Complete
	Enhanced intercalibration & analysis					
		NPP VIIRS vs. GOES analysis	Bartle		Analysis capabilities are lower priority	Not started
		Generalized LEO/GEO analysis	Bartle		Analysis capabilities are lower priority	Not started
		Generalized LEO/LEO analysis	Bartle		Analysis capabilities are lower priority	Not started
	Enhanced histogram analysis					
		Support for 1D or 3D histograms	Bartle		Lower priority	Not started
		Support for non-spatial 2D histogram bins	Bartle		Non lat/lon binning is now supported as an "advanced" data collection option for 2D Histograms	Complete
	Enhanced event prediction					
		Test all available satellites w/ TLEs	Bartle			Complete
		Implement ground site vs. satellite prediction	Roithmayr / Bartle			Complete
		Integrate Space Track TLE provider	Bartle			Complete
		Integrate with data mining	Bartle			Complete
		Investigate faster prediction based on product metadata	Bartle / Baskin		CERES-OT for example uses Post-GIS database to find files via query (fast)	In progress
	Enhanced user interfaces					
		REST interface to access intercalibration functionality	Bartle		Complete pending no new analysis requirements	Complete
		REST interface to access data mining functionality	Bartle		Complete pending no new mining functionality	Complete
		Implement web security	Bartle		HTTP-based authentication for REST users and form-based authentication for web app users	Complete
		Prototype web app support for intercalibration	Bartle		Complete pending no new analysis requirements	Complete
		Prototype web app support for data mining	Bartle		Complete pending no new mining functionality	Complete
		Data visualization for 2D histogram format data	Bartle		Currently supports graphing 2D histogram data.	Complete
		Data visualization for N-Tuple format data	Bartle / Currey		Visualize N-Tuple dimensional formatted data based on Currey's python code	In progress
		Data visualization for IFOV format data	Bartle		Resurrect older IFOV charts	In progress
	Enhanced server-side filtering					
		Refactor to support arbitrary dimensional filtering	Bartle		Unique solution allows fast filtering on any dimensions contained within the requested data & filter variables	Complete
		Cloud mask filtering	Bartle		Supported via arbitary filters above	???

		International Geosphere-Biosphere Programme (IGBP) surface type map filtering	Bartle		Supported via arbitary filters above	???	
		Data quality filtering	Bartle		I believe this is filtering on information not contained within the data file itself	Lower priority	
		Improved latitude/longitude filtering	Bartle		Lat/lon filtering requires an increasing range expressed as (e.g. for lon) -180 to 180 which does not always work with the event bounds or data variable format.	In progress	
	Enhanced client-side filtering						
		Support time-based filtering for events	Bartle		Important for files containing whole satellite orbits	Complete	
		Integrate available server-side filtering capabilities at client	Bartle		Client currently supports server-side filtering to the event bounding area & time and to fixed variable range(s).	In progress	
		Cloud mask filtering	Bartle			Not started	
		IGBP filtering	Bartle			Not started	
		Post-collection filtering to event prediction parameters	Bartle		Users have expressed some interest in having retrieved matched data filtered based on event prediction parameters (e.g. max viewing angle delta)	Not started	
	Automated Metrics reporting						
		Capture raw data to provide required metrics	Bartle			Not started	
		Implement monthly metrics reporting	Bartle			Not started	
	Initial Deployment						
		Hardware procurement, upgrade, configuration	Currey / Johnson		MIIC server purchased, pending setup	In progress	
		Integrate and test	Currey / Bartle			Not started	
		Deploy MIIC Hyrax at NCDC	Morris / Johnson			Not started	
		Deploy MIIC Hyrax at ASDC	Johnson			Not started	
		Deploy MIIC Services at ASDC	Johnson			Not started	
Year 2 - OSSE Support, Intercomparison, and Enhanced Data Analysis							
	Refactor MIIC to support intercomparisons beyond satellite vs. satellite						
		Support comparisons using >2 sources (i.e. a vs. b vs. c)					
		Support additional event generators					
		Support additional comparison source types (surface, satellite, model data, etc.)					
	Enhanced server-side data file searching						
		Improve server-side data file searching performance			We currently find OPeNDAP-served data by using thredds metadata responses to "crawl" folders based on folder naming conventions (data collection name and year/month/day)		
		Integrate with MIIC client					
	OSSE data product support						
		Server-side filtering and spatial subsetting					
		Server-side spectral resampling					
		Integrate with MIIC client					
	Server-side data processing						

		Run user-specified N-tuple server-side functions					
	Enhanced client data analysis						
		Integrate SCAVIS curve fitting					
		Integrate SCAVIS time-series analysis					
		Integrate SCAVIS histogram analysis					
	Evlauate ASDC/NCDC deployment						
		Analyze performance issues					
		Analyze issues related to off-line storage					
	Intercomparison support						
		Multi-satellite instrument acquistion and analysis					
		Cloud and Aerosol validation using CrIS, ATMS, VIIRS, and CALIOP data at orbit crossings	Liu				
		Histogram analysis	Lukashin				
	Enhanced user interfaces						
		REST interface to access intercomparison functionality					
		REST interface to access OSSE/GCM data					
		Prototype web app support for intercomparison					
	GSICS Intercalibration demonstration						
		REST-based intercalibration					
		REST-based large data analysis					
	Support NOAA NCDC off-line data						
		Search off-line data holdings			We predict a need to find files that are stored off-line and therefore not available to find via OPeNDAP thredds catalog		
		Asynchronous server requests			We currently request OPeNDAP-served data via HTTP requests. This will not work for off-line storage.		
	2nd Deployment						
		Address performance issues and scalability					
		Support NOAA NCDC off-line storage					
		Deploy MIIC/Hyrax at NCDC and ASDC					
		Integrate and test					
	Code Delivery						
		Deliver code to ECE or other designated repository					
	Documentation						
		Prepare user training materials					
		Publish journal article on MIIC capabilities & benefits					